NO. 6A ANNOUNCEMENT SYSTEM
MACHINE INTERCEPTING
CONTROL CIRCUIT
TESTS

1. GENERAL

1.01 This section describes a method of testing and adjusting the announcement machine control circuit used with machine intercepting trunks.

1.02 This section is reissued for the following reasons:

(a) To revise Test C to correct the procedures for checking and adjusting the volume.

(b) To revise Test D to provide a procedure for testing if the quality of the recorded announcement is found unsatisfactory in Test C. This reissue affects the Equipment Test List.

1.03 The tests covered are:

A. Automatic Transfer and Minor Alarm: This test checks the automatic transfer and minor alarm when a voice failure occurs in the on-line unit and the other unit is in the standby condition (idle).

B. Major Alarm: This test checks the major alarm when a voice failure occurs in the on-line unit and the other unit is in the maintenance condition (made busy).

C. ◗Volume and Quality of Announcement: This test checks the amplifier gain in the recording and reproducing condition of the unit. Procedures are outlined to set the gain as required. Quality of the recorded announcement is checked by monitoring.

D. Maintenance Tests and Procedures: This test outlines procedures to be followed if the quality of the recorded announcement is found unsatisfactory in Test C. This test checks voltage and frequency of the record bias oscillator signal, and the voltage level of the recording amplifier signal. Playback voltage is measured and the gain control of the reproducing amplifier is checked.

1.04 Tests C and D are made with one unit in the maintenance condition (made busy). These tests should be made as rapidly as possible since no transfer is possible from the on-line unit in case of trouble.

1.05 Tests C and D require that unit 1 be on-line and all procedures performed on unit 2. These procedures may be performed on unit 1 with unit 2 on-line by repeating the steps, substituting 1 for 2 in the designation of the jacks, keys, and lamps specified.◖

2. APPARATUS

All Tests

2.01 52A or 52S Headset.

2.02 KS-3008 Stopwatch or equivalent.

Test C

2.03 P3K patching cord, 6 feet long, equipped with two 310 plugs (3P15A cord).

2.04 52D or 52N Headset.

2.05 P2AB or P3S cord.

Test D

2.06 P3K patching cord, 6 feet long, equipped with two 310 plugs (3P15A cord).

2.07 400A Hewlett-Packard VTVM or equivalent.

2.08 72A frequency meter or equivalent.

2.09 3A noise measuring set.

3. PREPARATION

STEP	ACTION	VERIFICATION
All Tests		
1	These procedures require that unit 1 is on the line at the start of all tests. If unit 1 is not on the line— Momentarily operate OL1 key.	Unit 1 starts. Within 25 seconds after VF1 relay operates— OL2 lamp extinquished. Unit 2 stops. Within 50 seconds after VF1 relay operates— OL1 lamp lighted.
2	Plug 52A or 52S headset into jacks A2 and B2.	
Tests A and B		
3	Remove front covers from both recorder-reproducer units. ***Caution: Test B should be performed during periods of light traffic because both units will be off-line in Steps 5 though 8 or 13 through 16. The maximum time required to perform these steps should not exceed two announcement cycles.***	

4. METHOD

STEP	ACTION	VERIFICATION
A. Automatic Transfer and Minor Alarm		
4	Lift up record-reproduce magnetic head from the drum of unit 1 and monitor by means of the headset.	Within 30 seconds— Minor alarm sounded. AL1 lamp lighted. OL1 lamp extinguished. Unit 1 stops. Unit 2 starts. Within 25 seconds after VF2 relay operates— OL2 lamp lighted. Note that announcement starts at beginning.
5	Operate MN CO key.	Minor alarm silenced. MN GD lamp lighted. AL1 lamp remains lighted.

STEP	ACTION	VERIFICATION
6	Operate MB1 key.	MB1 lamp lighted. AL1 lamp extinguished. Unit 1 starts.
7	Restore MN CO key.	MN GD lamp extinguished.
8	Restore record-reproduce magnetic head to drum of unit 1.	
9	Operate and hold RESET 1 key.	
10	Restore MB1 key.	MB1 lamp extinguished. Unit 1 stops.
11	Restore RESET 1 key.	
12	After several announcement cycles— Remove plug of headset from jacks A2 and B2 and insert into jacks A1 and B1.	
13	Lift up record-reproduce magnetic head from the drum of unit 2 and monitor by means of the headset.	Within 30 seconds— Minor alarm sounded. AL2 lamp lighted. OL2 lamp extinguished. Unit 2 stops. Unit 1 starts. Within 25 seconds after VF1 relay operates— OL1 lamp lighted. Note that announcement starts at beginning.
14	Operate MN CO key.	Minor alarm silenced. MN GD lamp lighted. AL2 lamp remains lighted.
15	Operate MB2 key.	MB2 lamp lighted. AL2 lamp extinguished. Unit 2 starts.
16	Restore MN CO key.	MN GD lamp extinguished.
17	Restore record-reproduce magnetic head to the drum of unit 2.	
18	Operate and hold RESET 2 key.	
19	Restore MB2 key.	MB2 lamp extinguished. Unit 2 stops.
20	Restore RESET 2 key.	
21	Remove plug of headset from jacks A1 and B1.	

STEP	ACTION	VERIFICATION
22	Replace both front covers.	
B. Major Alarm		
4	Operate MB2 key.	MB2 lamp lighted. Unit 2 starts.
5	Lift up record-reproduce magnetic head from the drum of unit 1.	Within 30 seconds— Major alarm sounded. MJ AL lamp lighted (if provided). AL1 lamp lighted. OL1 lamp extinguished. Unit 1 stops.
6	Operate MJ CO key.	Major alarm silenced. MJ GD lamp lighted. AL1 lamp remains lighted.
7	Operate MB1 key.	MB1 lamp lighted. AL1 lamp extinguished. Unit 1 starts.
8	Operate and hold RESET 2 key.	
9	Restore MB2 key.	MB2 lamp extinguished. Within 25 seconds— OL2 lamp lighted. MJ AL lamp extinguished.
10	Monitor by means of headset.	Announcement starts at beginning.
11	Restore RESET 2 key.	
12	Restore record-reproduce magnetic head to the drum of unit 1.	
13	Restore MJ CO key.	MJ GD lamp extinguished.
14	After several announcement cycles— Remove plug of headset from jacks A2 and B2 and insert into jacks A1 and B1.	
15	Lift up record-reproduce magnetic head from the drum of unit 2.	Within 30 seconds— Major alarm sounded. MJ AL lamp lighted (if provided). AL2 lamp lighted. OL2 lamp extinguished. Unit 2 stops.
16	Operate MJ CO key.	Major alarm silenced. MJ GD lamp lighted. AL2 lamp remains lighted.

STEP	ACTION	VERIFICATION
17	Operate MB2 key.	MB2 lamp lighted. AL2 lamp extinguished. Unit 2 starts.
18	Operate and hold RESET 1 key.	
19	Restore MB1 key.	MB1 lamp extinguished. Within 25 seconds— OL1 lamp lighted. MJ AL lamp extinguished.
20	Monitor by means of headset.	Announcement starts at beginning.
21	Restore RESET 1 key.	
22	Restore record-reproduce magnetic head to the drum of unit 2.	
23	Restore MJ CO key.	MJ GD lamp extinguished.
24	Operate and hold RESET 2 key.	
25	Restore MB2 key.	MB2 lamp extinguished. Unit 2 stops.
26	Restore RESET 2 key.	
27	Remove plug of headset from jacks A1 and B1.	
28	Replace both front covers.	

C. ▶Volume and Quality of Announcement

3	Operate MB2 key. ***Note:*** If amplifier is equipped with vacuum tubes, allow 30 seconds for warm up before further procedures.	MB2 lamp lighted. Unit 2 starts.
4	Patch 1000 Hz-24 jack to T12 jack.	
5	Operate ER2 key for approximately 20 seconds.	ER2 lamp lighted while ER2 key is operated.
6	Operate REC2 key.	REC2 lamp lighted.
7	Operate VOL IND key to position 2.	At volume indicating meter (VU)— Average of high and low readings approximately 0.
8a	If volume requires adjustment— Set record gain control to give a reading of 0 VU on the VU meter.	

STEP	ACTION	VERIFICATION
9	Restore REC2 key.	REC2 lamp extinguished.
10	Remove patching cord between 1000 Hz-24 and TI2 jack.	
11	Adjust reproduce gain control as required.	At volume indicating meter (VU)— Average reading approximately −3 VU.
12b	If recording is to be performed at remote location— Insert plug of 52D or 52N headset into REC LINE jacks.	
13b	Insert plug of P2AB cord into lamp jack.	
14	Operate ER2 key for approximately 20 seconds.	ER2 lamp lighted while ER2 key is operated.
15	Operate REC2 key.	REC2 lamp lighted during recording interval. ***Note:*** Lamp at remote recording location also lighted if Step 13b is performed.
16	When REC2 lamp is lighted (or lamp at remote recording location if used)— Make the desired recording according to local practice.	At volume indicating meter (VU)— Average of high and low readings approximately 0.
17	Restore REC2 key.	REC2 lamp extinguished. At volume indicating meter (VU)— Average reading approximately −3 VU.
18	Monitor recording at headset used in Step 16.	Announcement clear and distinct with no noticeable distortion. If these qualities are not obtained, perform Test D.
19	Restore VOL IND key to normal.	
20	Remove headset used in Step 18 and plug from LAMP jack (if used).	
21	Operate and hold operated RESET 2 key.	
22	Restore MB2 key.	MB2 lamp extinguished. Unit 2 stops.
23	Restore RESET key.	

D. Maintenance Tests and Procedures

3	Perform Steps 3 through 18 of Test C.	

STEP	ACTION	VERIFICATION
4	Patch 1000 Hz-24 jack to TI2 jack.	
5	Operate REC2 key.	At volume indicating meter (VU)— Average of high and low readings approximately 0.
6	Using 4 μf nonelectrolytic blocking capacitors in both leads, connect ground side of VTVM to terminal 2, and input to terminal 1 at T.S.2, recorder-reproducer 2. This measures bias oscillator signal. ***Note:*** Leave VTVM connected until Step 11 is completed.	Reading 24-32 v rms.
7a	If solid-state amplifier KS-19219 L1 is furnished— Using 72A frequency meter, measure oscillator frequency at terminals 31 and 32 of T.S. TB1.	Reading 20 ±2 kHz.
8a	Remove bias oscillator card.	
9b	If vaccum tube amplifier KS-16508 is furnished— Using 72A frequency meter, measure oscillator frequency at terminals 9 and 10 of T.S. TB1.	Reading 23 ±3 kHz.
10b	Insulate 7, 8T of K1 relay.	
11	Using VTVM, measure signal level.	Reading 0.6—1.0 v rms.
12	Disconnect VTVM.	
13	Restore REC2 key.	
14	Remove patching cord between 1000 Hz-24 jack and TI2 jack.	
15	Using 3A noise measuring set in bridge mode with a 3 kHz flat network, measure playback voltage at terminals 1 and 2 of T.S. 2. ***Note:*** If signal is not present, consult Section 034-350-701.	Reading approximately 35 dBrn.
16a	If solid-state amplifier KS-19219 L1 is furnished— Replace bias oscillator card.	
17b	If vacuum tube amplifier KS-16508 is furnished— Remove insulator 7 and 8T of K1 relay.	
18	Operate ER2 key for approximately 20 seconds.	
19	Patch 1000 Hz-60 jack to TR2 jack.	

STEP	ACTION	VERIFICATION
20	Turn reproduce gain control fully counterclockwise.	At volume indicating meter (VU)— Reading approximately −20 VU.
21	Slowly turn reproduce gain control clockwise.	At volume indicating meter (VU)— Meter pointer moves across scale and exceeds +3 VU.
22	Remove patching cord between 1000 Hz-60 jack and TR2 jack.	
23	Perform Test C, Steps 4 through 23.◀	